WE CLAIM:

1. An implantable medical device for insertion into a passage, wherein the device is made from a platinum alloy selected from the group consisting of platinum:iridium alloy, platinum:tungsten alloy, platinum:rhodium:ruthenium alloy, platinum:rhodium alloy and platinum:nickel alloy.

2. The device according to claim 1, wherein the device is an expandable device.

3. The device according to claim 2, wherein the expandable device is a stent.

4. The device according to claim 3, wherein the passage is a bodily vessel.

5. The device according to claim 4, wherein the stent comprises a generally tubular structure having an exterior surface defined by a plurality of interconnected struts having interstitial spaces therebetween, said generally tubular structure expandable from a first position to a second position, wherein said tubular structure expands radially outwardly to the second position such that the exterior surface of said structure engages with the inner surface of the bodily vessel so as to maintain a fluid pathway through said bodily vessel.

6. The device according to claim 3, wherein the stent is a self-expandable stent.

7. The device according to any one of claims 1 to 6, wherein the platinum:iridium alloy has a composition of about 60-90 % of platinum and 10-40% of iridium.

8. The device according to claim 7, wherein the platinum:iridium alloy has a composition of about 70-90% of platinum and 10-30% iridium.

9. The device according to claim 8, wherein the platinum:iridium alloy has a composition of about 70-80% of platinum and 20-30% iridium.

10. The device according to any one of claims 1 to 6, wherein the platinum:tungsten alloy has a composition of about 85-95% of platinum and 5-15% of tungsten.

11. The device according to claim 10, wherein the platinum:tungsten alloy has a composition of about 90-95% of platinum and 5-10% of tungsten.

12. The device according to any one of claims 1 to 6, wherein the platinum:rhodium:ruthenium alloy has a composition of about 70-85% of platinum, 10-20% of rhodium and 3-10% of ruthenium.

13. The device according to claim 12, wherein the platinum:rhodium:ruthenium alloy has a composition of about 75-80% of platinum, 12-18% of rhodium and 5-10% of ruthenium.

14. The device according to any one of claims 1 to 6, wherein the platinum:rhodium alloy has a composition of about 60-80% of platinum and 20-40% of rhodium.

15. The device according to claim 14, wherein the platinum:rhodium alloy has a composition of about 65-75% of platinum and 25-35% of rhodium.

16. The device according to any one of claims 1 to 6, wherein the platinum:nickel alloy has a composition of about 80-90% of platinum and 10-20% of nickel.

17. The device according to claim 16, wherein the platinum:nickel alloy has a composition of about 85-90% of platinum and 10-15% of nickel.

18. The device according to claim 1, wherein the device is made from a wire of platinum:tungsten, platinum:iridium alloys, and welded to a predetermined tubular mesh.

19. The device according to any one of claims 1 to 18, wherein the device has a sidewall thickness of less than 0.0035".

20. The device according to any one of claims 1 to 19, wherein the surface of the device is modified by passive coatings.

21. The device according to 20, wherein the coating is iridium oxide or titanium nitrate.

22. The device according to claim 20, wherein the device is coated with an external layer containing a pharmaceutically effective amount of therapeutic substances.

23. The device according to claim 1, further comprises markers to enhance visibility and radiopacity of the device.

24. The device according to claim 23, wherein the markers include end markers or center markers.

25. An implantable endovascular device for insertion into a bodily vessel to treat ischemic and hemorrhagic stroke, the device comprising:

a wire structure made from a platinum alloy selected from the group consisting of platinum:iridium alloy and platinum:tungsten alloy, the structure being expandable from a first position to a second position, and said structure expands radially outwardly to the second position such that an exterior surface of said structure engages with the inner surface of the bodily vessel so as to maintain a fluid pathway through said bodily vessel;

wherein the wire structure is formed by welding tubular shaped wire sections together and the exterior surface of the wire structure is defined by the welded wire sections.

26. The device according to claim 25, wherein the welding is laser welding.

27. A delivery system for inserting a device an implantable medical device according to claim 1, within a bodily vessel, wherein the device is expandable by balloon inflation, the delivery system comprising a balloon delivery catheter and the device, wherein the expandable medical device is mounted onto the balloon of the delivery catheter.

28. A delivery system for inserting an implantable medical device according to claim 1, within a bodily vessel, wherein the device is self-expandable, the delivery system comprising a delivery catheter and the device, wherein the device is mounted onto a distal portion of the delivery catheter.

29. The device according to claim 1 or claim 25, wherein the device is deployed at a pressure equal to or below 4atm.

30. The device according to claim 1 or claim 25, wherein the device is longitudinally flexible, the flexibility being such that it is greater than a delivery catheter to deliver the device into the bodily vessel.

31. The device according to claim 30, wherein the longitudinal flexibility of the device is defined by deflection of the device from a neutral line to 1mm when there is a force less then 8 grams.

32. The device according to claim 1 or claim 25, wherein the structure of the device provides a normalized radial force 18 to 19grams per mm of length.

33. The device according to claim 32, wherein the structural support of the device provides 3 to 4% of deflection of the structure of the device together with natural pulsing of an intracranial vessel wall.

34. The device according to claim 1 or claim 25, wherein the device has a profile in a compressed delivery form of 0.020 inches.

35. The device according to claim 1 or claim 25, wherein the device has a profile between 0.014 to 0.016 inches and the profile of the device in an uncompressed delivery form is between 0.020 to 0.022 inches.

36. The device according to claim 1 or claim 25, wherein the device has uniform material distribution and wall coverage for providing support to a bodily vessel.

37. The device according to claim 36, wherein the ratio of the material is in the range of 12 to 16%, the range being dependent on the diameter of deployment.

38. The device according to claim 1 or claim 25, wherein the device comprises struts, the struts having a thickness and width less than or equal to 0.0028 inches.

39. The device according to claim 1 or claim 25, wherein the device has a surface to length ratio between 1.1 to 1.3mm²/mm to provide minimal vessel injury score.